

FUJR :6.535
00424,654-0942665HREMARKS

This amendment is in response to the Examiner's Office Action dated 1/26/2005 and further in view of the interviews of 04/06/2005 and 04/27/2005. Applicant's representative is appreciative of the professional and courteous manner in which both the interviews were conducted. As per the examiner's suggestion, amendments have been made to clarify applicant's invention. Claims 16-17 are added without adding new matter. Support for newly added claims 16-17 can be found in figure 1 and accompanying descriptions in the application-as-filed. Reconsideration of this application is respectfully requested in view of the foregoing amendment and the remarks that follow.

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STATUS OF CLAIMS

Claims 1, 3 and 5-7 are pending.

Claims 1 and 3 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yoshida et al. (USP 6233257 B1) in view of well known prior art, and further in view of Scott (USP 5745484).

Claims 5-7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yoshida et al. in view of Scott.

OVERVIEW OF CLAIMED INVENTION

The presently claimed invention provides for a radio communication system for performing radio communication control having frames with a plurality of transmit and receive time slots and guard intervals between said receive time slots, said system as implemented in a base station comprising a propagation information calculation device comprising: (a) a

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continuous time slot allocating means for allocating an up continuous time slot comprising a single continuous transmitting time slot and a single continuous expanded guard bit portion and for allocating, to a terminal device, a down continuous time slot comprising a single continuous receiving time slot and a single continuous expanded guard bit portion, and (b) a propagation information calculating means for communicating with the terminal unit during a period defined by the single continuous transmitting time slot to calculate propagation information about radio wave propagation between a radio base station and the terminal unit; wherein a transmission timing calculation device, located in a terminal unit, comprising (1) a transmission timing calculating means calculating, during the period of the single continuous transmitting time slot and based on the propagation information, transmission timing for a signal to be transmitted from the terminal unit to the radio base station, and (2) a signal transmitting means to transmit the signal in accordance with the calculated transmission timing. Based on the teachings of the present invention, an expanded range of protection is accomplished by the expanded guard bits via delaying transmission based on the calculated transmission timing so that up data is received in a receiving time slot.

The present invention also provides for a method, as implemented in a radio base station, for calculating radio wave propagation information utilizing frames with a plurality of transmit and receive time slots and guard intervals between said receive time slots, said method comprising the steps of: (a) allocating an up continuous time slot comprising a single continuous transmitting time slot and a single continuous expanded guard bit portion and for allocating, to a terminal device, a down continuous time slot comprising a single continuous receiving time slot and a single continuous expanded guard bit portion, and (b) calculating means for

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communicating with the terminal unit during a period defined by the single continuous transmitting time slot to calculate propagation information about radio wave propagation between a radio base station and the terminal unit; (c) receiving a calculated transmission timing for a signal to be transmitted from the terminal unit to the radio base station, said calculation performed during the period of the single continuous transmitting time slot and based on the propagation information, and (d) receiving a transmitted signal in accordance with the transmission timing, wherein an expanded range of protection is provided by the expanded guard bits by delaying transmission based on said calculated transmission timing so that up data is received in a receiving time slot.

In the Claims

As per examiner's suggestion, claims 1, 5, 6, and 7 have been amended to clarify the present invention without adding new matter. Claims 16-17 are added without adding new matter. Support for newly added claims 16-17 can be found in figure 1 and accompanying descriptions in the application-as-filed.

REJECTIONS UNDER 35 U.S.C. § 103(a)

Claims 1 and 3 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yoshida et al. (USP 6,233,257 B1) in view of well known prior art, and further in view of Scott (USP 5,745,484). Further, claims 5, 7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yoshida et al. in view of Scott. To be properly rejected under 35 U.S.C. § 103(a), each and every element of the claims must be addressed through known prior art or be recognized as an obvious variation thereof. Applicant contends that the combination of the

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Yoshida et al. reference and the Scott reference, in view of well known prior art, fail to provide many of the limitations of applicant's pending claims.

Yoshida et al. teach a method and system that determines a transmission distance time delay that exists between a base station and a personal station within a wireless local loop system. According to Yoshida et al., the determination is done by employing a communication interface between the base station and the personal station. Once the transmission distance time delay between a base station and a personal station is known, the personal station can compensate for such delay.

The Scott reference teaches a method for communicating between a base station and a plurality of user stations, wherein the method comprising the steps of: (a) transmitting (from a base station) over a specified frequency band and during an initial portion of a time frame, a plurality of base-to-user messages directed to user stations, with each of the base-to-user messages corresponding to a different base time slot; (b) receiving (at the base station - from the user stations) over the specified frequency band and during a latter portion of the time frame, a plurality of user-to-base messages directed to the base station, with each of the user-to-base messages corresponding to a different user time slot; and (c) transmitting from the base station, over the specified frequency band and during a subsequent time frame, a timing adjustment command to at least one of said user stations, whereby at least one subsequent user-to-base message from said user station is advanced or retarded in time by an amount specified by said timing adjustment command.

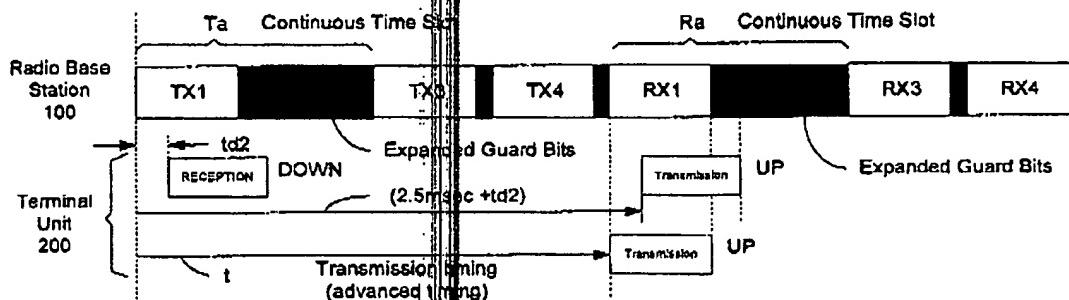
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With respect to independent claims 1 and 5-7 the examiner, in the office action of 1/26/2005, states that the Yoshida et al. reference teaches a continuous receive time slot, which includes a single continuous receive portion and a single continuous expanded guard bit portion. Applicant, however, respectfully disagrees with the examiner. Provided below is a representation of the frame structure according to the teachings of Yoshida et al. and as shown in figures 3a-b of Yoshida et al.

R/T 204, 206, 220, 222, 212, 214, 228, 230	Guard Spaces 302-326	R/T 204, 206, 220, 222, 212, 214, 228, 230	Guard Spaces 302-326
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It can be clearly seen that this setup is representative of the prior art, wherein the reception (labeled R) or transmission (labeled T) slots 204, 206, 220, 222, 212, 214, 228, or 230 are *always* followed by guard spaces 302-326. This setup teaches away from the present invention's frame structure as shown in figure 2 of the application-as-filed, which is reproduced below to aid the examiner in understanding applicants' invention.



It can be seen from applicant's frame structure (as described in the claims) that an up continuous time slot Ta comprises a transmitting slot TX1 and a time slot, which comprises guard bits extending up to a transmitting slot TX2 (see area labeled 'expanded guard bit'). Similarly, in applicant's frame structure (as described in the claims), a down continuous time slot Ra

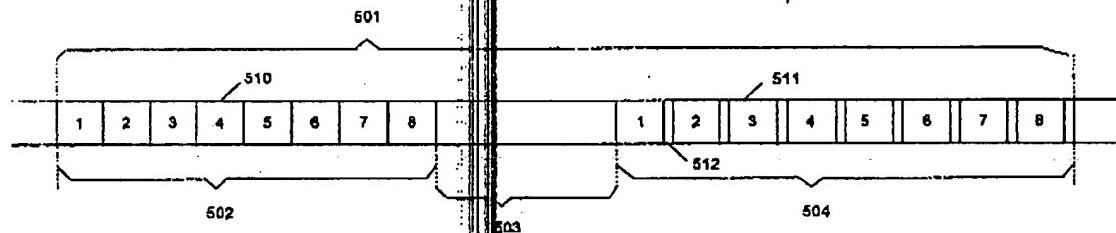
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comprises a receiving slot RX1 and a time slot, which comprises guard bits extending up to a receiving slot RX2 (see area labeled 'expanded guard bit').

It is clear from figure 3a-b of Yoshida et al. that the standard guard spaces 302-326 cannot be equated to the expanded guard bits of applicant's invention. It should be noted that the secondary reference relied on, Scott, also fails to provide for the limitations of the claimed invention. The frame structure of Scott is shown in figure 5A, which is reproduced below for the benefit of the examiner.



Scott's frame structure teaches the use of a collective guard time portion 503 that follows after all transmission time slots 510. Applicant contends that the Yoshida et al. reference and the Scott reference, either by themselves or in combination, fail to teach a continuous time slot comprising a transmitting slot followed by a time slot comprising guard bits extending up to another transmitting slot. Applicant also contends that the Yoshida reference and the Scott reference, either by themselves or in combination, fail to teach a continuous time slot comprising a receiving slot followed by a time slot comprising guard bits extending up to another receiving slot.

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Hence, applicant contends that independent claims 1 and 5-7 cannot be rendered obvious by the combination of Scott and Yoshida et al. references. Applicant, therefore, respectfully requests the examiner to withdraw the rejection with respect to claim 1. The above mentioned arguments substantially apply to dependent claim 3 as it inherits all the limitations of independent claim 1.

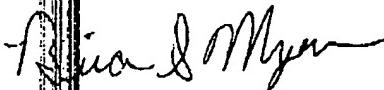
SUMMARY

As has been detailed above, none of the references, cited or applied, provide for the specific claimed details of applicant's presently claimed invention, nor renders them obvious. It is believed that this case is in condition for allowance and reconsideration thereof and early issuance is respectfully requested.

This amendment is being filed with a petition for extension of time. The Commissioner is hereby authorized to charge the petition fee, as well as any deficiencies in the fees provided to Deposit Account No. 50-1290.

If it is felt that an interview would expedite prosecution of this application, please do not hesitate to contact applicant's representative at the below number.

Respectfully submitted,



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